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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/075,978      | 02/15/2002  | Arun K. Chaudhuri    | DP-305944           | 9214             |

7590 06/02/2004

DELPHI TECHNOLOGIES, INC.  
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EXAMINER

YOON, TAE H

|          |              |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

1714

DATE MAILED: 06/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/075,978

Applicant(s)

CHAUDHURI ET AL.

Examiner

Tae H Yoon

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13-20 is/are allowed.
- 6) ☒ Claim(s) 1,2 and 8-10 is/are rejected.
- 7) ☒ Claim(s) 3-7, 11 and 12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clark, Jr. et al (US 5,785,913) in view of Misra (US 6,165,612).

Clark, Jr. et al teach thermally conductive polymer-based material in abstract wherein ferrite particles coated with thermally conductive materials in a polymer is taught. Various (matrix) polymers such as polypropylene, polyvinylchloride and epoxy and silicone resins are taught at col. 4, lines 11-21.

The instant invention further recites that a dielectric coating contains dielectric particles and the dielectric coating has a softening temperature below the melting temperature of the metal particles.

Misra teaches thermally conductive coating composition comprising polyurethane or other elastomer and thermally conductive fillers such as alumina, boron nitride or diamond at col. 2, lines 12-28. Said polyurethane is insoluble various resins, such as polypropylene, polyvinylchloride and epoxy and silicone resins, of Clark, Jr. et al.

It would have been obvious to one skilled in the art at the time of invention to utilize the coating comprising polyurethane and thermally conductive fillers such as alumina, boron nitride or diamond of Misra in coating of ferrite particles of Clark, Jr. et al since Clark, Jr. et al coating of said ferrite particles with thermally conductive materials

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and since thermally conductive coating comprising a polymer and thermally conductive fillers are well known in the art as taught by Misra.

Claims 3-7, 11 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 13-20 are allowed.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Pat. 5,060,114 to Feinberg et al teaches a thermally conductive filler filled gel-like (silicone) pad in abstract, but neither teaches nor suggests the use of metal particles coated with a dielectric coating. US pat. 5,288,769 to Papageorge et al teaches a thermally conductive adhesive comprising a polymer filled with aluminum nitride coated with copper or other metal in abstract and at col. 2, lines 18-59.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tae H Yoon whose telephone number is (571) 272-1128. The examiner can normally be reached on Mon-Thu.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone

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number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Tae H Yoon  
Primary Examiner  
Art Unit 1714

THY/May 20, 2004